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**Overview of the Bristol Bay Salmon Fishery 2013-2015,
a Report to the Alaska Board of Fisheries**

by

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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ABSTRACT

The Bristol Bay Area supports the largest runs of wild sockeye salmon (*Oncorhynchus nerka*) on Earth. The area is divided into 5 commercial fishing districts associated with the saltwater terminus of major river systems (from west to east): Togiak, Nushagak, Naknek–Kvichak, Egegik, and Ugashik districts. The commercial fishery is primarily directed towards sockeye salmon, but the districts also support harvests of king (*O. tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), and pink salmon (*O. gorbusha*) in even-numbered years. Activities of the commercial fishery between 2013 and 2015 are summarized in the following pages. Data presented are compared to recent 10- (2005-2014) and 20-year averages (1995–2014). More detailed information regarding particular years are published in the *Bristol Bay area annual management report* series, and can be found on the Bristol Bay home page: <http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareabristolbay.salmon#management>.

Keywords: sockeye salmon *Oncorhynchus nerka*, king salmon *O. tshawytscha*, chum salmon *O. keta*, pink salmon *O. gorbusha*, coho salmon *O. kisutch*, commercial fishing, Naknek Kvichak, Ugashik, Egegik, Nushagak, Togiak, Bristol Bay

INTRODUCTION

The Bristol Bay Area includes all coastal and inland waters east of a line from Cape Newenham to Cape Menshikof (Figure 1) and is the largest sockeye salmon *Oncorhynchus nerka* producing region in the world. The area also produces substantial returns of other salmon species as well as herring *Clupea pallasii*.

Bristol Bay is divided into 5 commercial salmon fishing districts: Togiak, Nushagak, Naknek–Kvichak, Egegik, and Ugashik. Associated with these districts are 9 major rivers: Togiak, Igushik, Wood, Nushagak, Kvichak, Alagnak, Naknek, Egegik, and Ugashik. Several districts are divided into sections that provide more management flexibility in controlling exploitation of individual salmon stocks when more than one river system contributes to the district’s salmon return. The districts and sections are confined to areas near the river mouths in order to minimize interceptions of salmon destined for other areas. In addition, there are special harvest areas in every district, with the exception of Togiak. These special harvest areas are designed to minimize the interception of salmon stocks bound for other systems or to provide additional opportunity to focus harvest on fish surplus to escapement needs. Commercial fishing is opened by emergency order (EO) in all districts, except the Togiak District, which has a regular weekly fishing schedule that is adjusted by emergency order to increase or decrease fishing time depending on escapement.

In the last 20 years (1995–2014), Bristol Bay commercial salmon harvests have averaged 23.2 million sockeye, 55,000 king *O. tshawytscha*, 936,000 chum *O. keta*, 415,000 pink *O. gorbusha* (during even years), and 84,000 coho salmon *O. kisutch*. The value of the Bristol Bay commercial salmon fishery has averaged \$111 million over the last 20 years, but because of larger runs and higher prices, the recent 3-year average is \$152 million (Table 1).

Subsistence salmon harvests in the same time period have averaged approximately 132,000 salmon, of which 103,000 have been sockeye salmon. Sport fisheries primarily target king and coho salmon, but pink, chum, and sockeye salmon are also harvested.

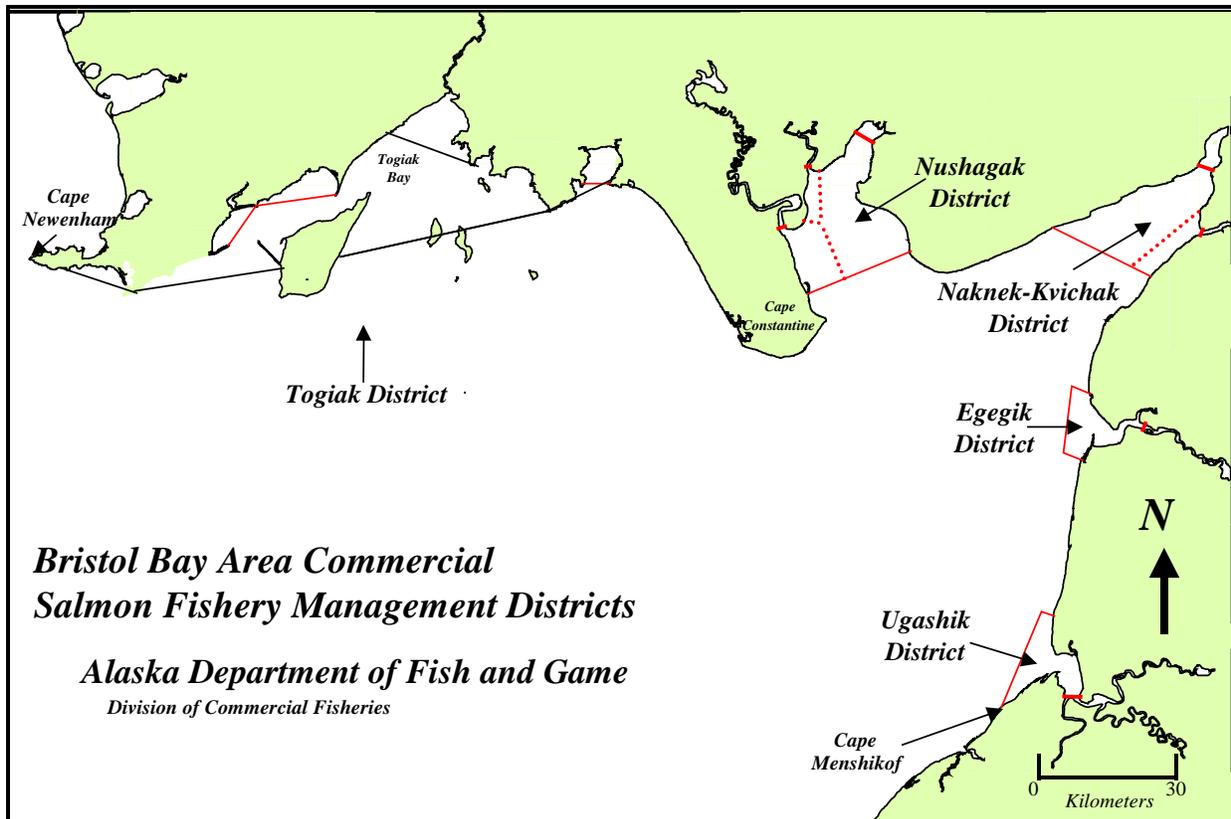


Figure 1.–Bristol Bay area commercial fisheries salmon management districts.

The management objective for all districts in Bristol Bay is to achieve escapement goals for salmon species while providing opportunities to harvest fish surplus to escapement needs. The Bristol Bay salmon fishery opens on June 1 by regulation. Prior to June 25, drift gillnet vessels wishing to fish in eastside districts (Naknek–Kvichak, Egegik, and Ugashik) are not required to register for a district before fishing. After June 24, fishermen must register prior to fishing in any district. Prior to 2009, drift gillnet vessels were required to register starting June 1 before fishing anywhere in Bristol Bay. In the Nushagak District, drift and set gillnet fishermen must register prior to fishing anytime between June 1 and July 17. Prior to 2009, if a permit holder wanted to fish in a different district, they needed to inform the Alaska Department of Fish and Game (department) at the King Salmon or Dillingham department offices, in person or via an authorized agent, and had to serve a 48-hour waiting period. In 2009, a new program became available that allowed transfers to be made online by the permit holder or their authorized agent. Initially, transfers were only allowed to be originated during office hours, but subsequent modifications now allow transfers to be initiated at any time and allow initial registration to be accomplished online. After informing the department of intent to transfer, permit holders must still wait 48 hours before it is legal to fish in a different district. If an individual owns both a set and drift gillnet permit, they may not fish both permits at the same time but must inform the department of the intent to transfer and wait 24 hours before switching to the new gear. They may, however, fish the gear they were fishing during the waiting period.

In 2003, legislative action allowed drift and set gillnet fishermen to own 2 permits. In 2004, the Alaska Board of Fisheries (board) adopted a regulation allowing 2 drift gillnet permit holders to combine as a dual operation and use 200 fathoms of drift gillnet. In 2009, the board adopted a

regulation that allowed an individual to operate 2 set gillnet permits and use 2 full complements of gear, but with no more than 1 complement on any single site. Sunset of this regulation occurred in 2012 without further board action. Special harvest areas were exempted from allowing use of dual drift permits. In 2015, there were 309 vessels operating as dual permit partnerships, similar to recent years (Table 1). On average 36% of all permits in Bristol Bay operate as dual permit vessels over the past 3 years.

SALMON HARVEST OVERVIEW 2013–2015

The Bristol Bay salmon runs steadily increased each year from 2013 to 2015 and produced 1 below-average harvest (2013) and 2 years (2014 and 2015) of above-average harvests (Table 1). The 2015 Bristol Bay sockeye salmon run of 58 million fish ranks second out of the last 20 years (1995–2014) and was 70% above the 34.2 million average run for the same period. The exvessel price dropped from a 20-year high of \$1.50 /lb in 2013 to \$0.50/lb in 2015, the lowest on record since 2002 (Appendix A9). Sockeye salmon harvests in 2013 were below average in all districts, but 2014 and 2015 harvests were both well above the long-term average (Appendix A7). Togiak sockeye salmon harvest was below average for all 3 years (Appendix A7). Total exvessel value of Bristol Bay sockeye salmon was above recent 10- and 20-year averages in 2013 and 2014, but not 2015 (Appendix 10). Allocation between gear groups has been successfully achieved within a few percentage points in recent years (Appendices A4, A5, and A6). Sockeye salmon escapements met or exceeded goals for all river systems in all years except for 2014 in the Alagnak River (Appendix A8). There are no stocks of concern in Bristol Bay.

The 2013 season produced a harvest of 15.4 million sockeye salmon, an exvessel price of \$1.50/lb (highest in the last 20 years), and an exvessel value of \$139 million, and was the earliest run timing since statehood. The 2014 season produced a harvest of 29.1 million sockeye salmon, a base exvessel price of \$1.20/lb, an exvessel value of \$196 million, and the highest exvessel value in the last 20 years. Due to a large bay-wide catch on June 27, 2014, several processors put fishermen on catch limits for 2 days, reducing the harvest. The 2015 season produced a harvest of 35.6 million sockeye salmon (largest since 1995), a base exvessel price of \$0.50/lb. compared to the 20-year average of \$0.83/lb, and an exvessel value of \$92 million. The 2015 run exhibited the latest run timing since statehood. Because the run was so large many processors put fishermen on catch limits for up to 10 days.

Table 1.–Fishery participation, harvest, price, and value summarized for the last 3 years.

Year	\$/lb	Sockeye Catch (Millions)	Value (Millions)	Drift Gillnet Permits	Dual Drift	
					Gillnet Permits	Set Gillnet Permits
2013	1.5	15.4	\$138.80	1,709	313	854
2014	1.2	29.1	\$195.70	1,751	312	883
2015	0.5	35.7	\$92.40	1,744	309	^b
2013-15 Avg.	1.08	26.7	\$152.40	1,735	311	^b
20-year Avg.	0.83	23.1	\$111.30	1,670	^a	859
10-year Avg.	0.94	25.8	\$140.60	1,645	^a	857

^a Dual permit tracking did not begin until 2010.

^b Data not available.

FISHERIES BY DISTRICT 2013–2105

NAKNEK–KVICHAK DISTRICT

2013

The 2013 Naknek–Kvichak District total inshore run of 8.2 million sockeye salmon was 20% below the forecast of 10.2 million fish (Appendix A1). The commercial harvest of 4.9 million sockeye salmon was significantly below (36%) the 20-year average harvest of 7.6 million fish (Appendix A7).

- Run timing to the district was 5 days earlier than the 20-year average of July 5. This was the earliest run timing on record.
- In order to meet escapement goals, fishing was closed from July 5 to July 9, which is an unusually long closure around the historical peak of the run.
- Sockeye salmon escapement goals were met in the Naknek (800,000–1.4 million), Kvichak (2–10 million), and Alagnak (>320,000) rivers (Appendix A8).

2014

The total inshore run of 19.8 million sockeye salmon to the Naknek–Kvichak District was 89% above the forecast of 10.5 million fish and was the third largest run since 1995 (Appendix A2). The commercial harvest of 13.8 million sockeye salmon was 82% above the 20-year average harvest of 7.6 million fish (Appendix A7).

- The sockeye salmon run to the District was 3 days earlier than the 20-year average of July 5.
- Escapements to the Naknek and Kvichak rivers were above expectations early in the run and remained above expectations throughout the run. As a result there was liberal fishing opportunity.
- The Kvichak River sockeye salmon escapement goal (2.0–10.0 million) was met with an escapement of 4.5 million fish and was the fifth highest escapement since 1995.
- The Naknek River sockeye salmon escapement goal (800,000–1.4 million) was exceeded with an escapement of 1.5 million fish.
- The Alagnak River has a sockeye salmon escapement goal of greater than 320,000 fish based on tower counts. The counting tower on the Alagnak River has not operated since 2011. To substitute tower counts, the department flies aerial surveys and expands the estimates based on a relationship between tower counts and aerial survey estimates. The expanded aerial survey estimate in 2014 was 200,500, below the escapement goal.

2015

The total inshore run of 31.3 million sockeye salmon to the Naknek–Kvichak District (Appendix A3) was 14% above the forecast of 27.7 million fish and was the second largest run to the district since 1995. The commercial harvest of 16.3 million sockeye salmon was 114% above the 20-year average harvest of 7.6 million fish (Appendix A7). The most significant events of the 2015 season were as follows:

- The sockeye salmon run to the District was 7 days later than the 20-year average of July 5 and the second latest run on record.
- Prior to July 8 there was limited fishing opportunity and harvests were small. On July 8 the daily harvest exceeded 1.0 million fish and large daily harvests continued with at least 1.0 million fish caught in 8 out of the 10 days from July 8 to July 17.
- The Kvichak River sockeye salmon escapement goal (2.0–10.0 million) was met with an escapement of 7.3 million fish, which was the second highest escapement since 1995.
- The Naknek River sockeye salmon escapement goal was revised in 2015 with a range of 800,000 to 2.0 million. The Naknek River escapement goal was met in 2015 with an escapement of 1.9 million sockeye salmon.
- The Alagnak River sockeye salmon escapement goal was met with an expanded aerial survey escapement estimate of 5.8 million sockeye, which is the highest on record. This was slightly higher than the previous record escapement of 5.4 million sockeye in 2004 when the estimate was based on tower counts.

ELEGIK DISTRICT

2013

The 2013 Egegik inshore run of 5.9 million sockeye salmon (Appendix A1) was slightly below the preseason forecast of 6.1 million. The harvest was 4.8 million fish (Appendix A7) and the escapement was 1.1 million sockeye salmon, within the escapement goal range of 800,000 to 1.4 million (Appendix A8).

- The 2013 harvest of 4.8 million sockeye salmon ranked sixteenth out of the last 20 years (Appendix A7).
- The midpoint of the run of June 28 was 6 days early, compared to the most recent 20-year average of July 3.

2014

The 2014 Egegik inshore run of 8.3 million (Appendix A2) was 79% above forecast of 4.6 million sockeye salmon. The district harvest was 6.9 million (Appendix A7) with an escapement of 1.4 million sockeye salmon, within the escapement goal range of 800,000 to 1,400,000 (Appendix A8).

- The 2014 sockeye salmon harvest of 6.9 million ranked eleventh out of the last 20 years and was 105% above the preseason forecast (Appendix A7).
- The 2014 run exhibited average run timing; the midpoint was July 2 compared to the 20-year average of July 3.

2015

The 2015 Egegik inshore sockeye salmon run of 10.5 million (Appendix A3) was below forecast and exhibited late run timing. By the end of the EO period on July 17, cumulative catch was 8.3 million sockeye salmon (Appendix A7); cumulative escapement was 2.2 million sockeye salmon and above the newly adopted escapement goal range of 800,000 to 2,000,000 sockeye

salmon (Appendix A8). The new range was adopted in the spring of 2015, and this was the first year with the new goal.

- The 2015 harvest of 8.3 million sockeye salmon in the Egegik District ranked fifth out of the last 20 years (Appendix A7), was 22% above the most recent 20-year average of approximately 6.9 million fish, and was 13% below the preseason forecast.
- The midpoint of the run was July 9, six days later than the 20-year average of July 3.

UGASHIK DISTRICT

2013

The 2013 inshore sockeye salmon run to the Ugashik District of 3.0 million fish (Appendix A1) was 13% below the forecast of 3.5 million fish. The harvest was 2.2 million (Appendix A7) and cumulative escapement was 898,000 sockeye salmon, within the escapement goal range of 500,000 to 1.2 million (Appendix A8).

- The harvest of approximately 2.2 million fish was 13% below the 20-year average of 2.5 million fish and ranked thirteenth for the same period (Appendix A7).
- Run timing was 13 days earlier than the most recent 20-year average midpoint of July 10 and the earliest on record.

2014

The 2014 inshore sockeye salmon run to the Ugashik District of 2.1 million fish ranks seventeenth in the last 20 years (Appendix A2) and was 16% above forecast. District harvest was approximately 1.5 million fish (Appendix A7) and cumulative escapement was 640,158 sockeye, within the escapement goal range of 500,000 to 1.2 million fish (Appendix A8).

- The 2014 harvest of 1.5 million sockeye salmon ranked fifteenth out of the last 20 years, was 12% lower than the most recent 20-year average of approximately 2.4 million fish (Appendix A7), and was 69% above the preseason forecast.
- The midpoint of the run was July 9, one day earlier than the most recent 20-year average of July 10.

2015

The 2015 inshore sockeye salmon run to the Ugashik District of 6.9 million fish (Appendix A3) ranks second in the last 20 years and was 93% above forecast. The Ugashik District harvest was 5.3 million fish (Appendix A7) with an escapement of 1.6 million sockeye salmon, above the newly adopted escapement goal range of 500,000 to 1.4 million fish (Appendix A8). The new range was adopted in the spring of 2015 and this was the first year with the new goal. Fishermen were placed on limits because harvest rate exceeded processing capacity.

- The 2015 harvest of 5.3 million sockeye salmon ranked first out of the last 20 years, was 120% above the most recent 20-year average of approximately 2.4 million fish, and was 96% above the preseason forecast (Appendix A7).
- The midpoint of the run was July 10, the average date for the most recent 20-year period.

NUSHAGAK DISTRICT

2013

The biggest event of 2013 was the capsizing and sinking of the tender *Lone Star* in the mouth of the Igushik River. The sinking and resultant oil spill on June 30 occupied most of staff time and industry concern from then on. Ultimately, because of contamination concerns, a 5-mile radius area around the spill was closed on July 5 for the remainder of the 2013 season.

- Although the Nushagak River sockeye salmon run was stronger than expected, the Wood River run was relatively low, resulting was a harvest of 3.2 million sockeye salmon, below the 20-year average of 5.7 million sockeye salmon (Appendices A1 and A7).
- Nushagak River king salmon escapement was strong with 113,709 (Appendix A1) fish counted, within the escapement goal range of 55,000–120,000.
- Nushagak and Igushik rivers exceeded the upper end of their sockeye salmon escapement goal ranges. This was unavoidable in the Igushik River because of the *Lone Star* incident.
- A strong coho salmon run with strong market interest resulted in a commercial harvest of 124,162 coho salmon (Appendix A1).

2014

The most significant event of 2014 in the Nushagak District was strong early-run entry and harvests. Because of the poor Nushagak River sockeye salmon forecast relative to the Wood River forecast (1.2 million Nushagak versus 6.9 million for Wood River), the department implemented a conservative early season strategy to avoid overexploiting Nushagak sockeye salmon and king salmon stocks. As in previous years, the department waited to start fishing until the Wood River sockeye salmon escapement was projected to be 100,000 fish. It appeared this would happen on June 24, and the department announced a set gillnet opening on June 23 for the morning of June 24. Escapement was below expectations at just over 21,000 fish for the day, bringing the cumulative total to 98,000 fish. Despite poor escapement and slow fishing on June 24, escapement skyrocketed starting on June 25. Over 1.1 million fish were counted past the Wood River towers from June 25 to June 27.

- The Wood River Special Harvest Area was used to harvest surplus Wood River sockeye salmon beginning on June 28 with both drift and set gillnets.
- Wood River final escapement was 2.8 million sockeye salmon, above the upper end of the escapement goal range of 1.5 million sockeye salmon (Appendices A2 and A8).
- Initially king salmon escapement appeared to be strong. The department had 4 directed king salmon openings based on early run strength. However, run strength faltered and the final king salmon escapement was 70,482 (Appendix A2), within the escapement goal range.
- The 2014 pink salmon run was strong and there was significant market interest. Harvest topped at 1.2 million fish and escapement was also strong at 2.3 million fish (Appendix A2).
- The Nushagak District also produces a strong coho salmon run. The 2014 coho salmon harvest of 243,000 fish (Appendix A2) was 650% of the 20-year average harvest.

2015

The most significant event in the Nushagak District in 2015 was limits placed on fishermen as processing capacity was overwhelmed. Although the run was very protracted in the Nushagak District there was never a large daily harvest event. Harvest peaked on July 2 at a modest 341,000 sockeye salmon. Combined escapement in the district peaked on July 13. Commercial fishing with drift gillnets was extended until further notice on July 9. By the evening of July 10, some processors in the Nushagak restricted harvest so as to not exceed their processing and tendering capacity. These restrictions were in place for at least 10 days.

- With a very strong forecast for all of Bristol Bay and strong forecasts for all Nushagak District systems, the department implemented an aggressive early season strategy with liberal fishing opportunity.
- Commercial fishing began in the Nushagak Section on June 21 and continued daily until August.
- Despite early and consistent fishing, the Wood and Igushik rivers exceeded the upper ends of escapement goal ranges (Appendix A3).
- The Nushagak River king salmon return was strong, with an escapement of 98,019 fish and a harvest of 48,803 king salmon during the directed sockeye fishery (Appendix A3).

TOGIAK

2013

The Togiak District differs substantially from other Bristol Bay districts. The run is much smaller with an average harvest of 542,000 sockeye salmon over the last 20 years (Appendix A7). Run timing is later relative to the other districts and fishing effort is more generally local to Togiak and Twin Hills residents. In 2013, the run started strong with escapements above expectations, but early strength did not continue and the department reduced the regular fishing schedule later in the season to meet the minimum escapement of 120,000. The final escapement of 128,118 sockeye salmon was the lowest since 1989.

- The Alaska Board of Fisheries (board) adopted a new regulation in 2012 to create a drift gillnet line that seasonally moved fishing away from the mouth of the Togiak River for king salmon conservation through July 15. The 2013 season was the first year this line was in effect.
- The department was unable to survey king salmon escapement in 2013.
- The king salmon harvest of 2,642 (66% below 20-year average) may indicate a poor return while also suggesting that the new regulation reduced incidental king salmon harvest (Appendix A1).
- The total run of 602,000 sockeye salmon was 10% above forecast in 2013 and was 20% below the 20-year average of 780,000 fish (Appendix A1).

2014

The most significant event during the 2014 Togiak salmon season was the widespread illegal fishing that was documented. Alaska Wildlife Troopers cited 5 vessels for fishing over a mile outside the open fishing area east of Kulukak Bay. The illegal fishing may have influenced slow sockeye salmon escapement in the Togiak River. The department reduced fishing time during the typical peak of the season because of lower-than-expected escapement.

- The total run of 593,000 sockeye salmon was 18% below forecast and below the long-term average of 772,000 fish (Appendix A2).
- Fishing continued into early September and the Togiak District produced the largest coho salmon harvest of 32,000 (Appendix A2) since 1998 (Appendix A2).
- The king salmon harvest of 1,704 fish was 77% below the 20-year average. This may be due to a combination of reduced fishing time, the new (in 2013) drift gillnet line, and a poor total run (Appendix A2).

2015

The most significant event of the 2015 season in Togiak was late run timing. The department reduced the regular weekly fishing schedule because of poor escapement. Area residents submitted an emergency petition to the board to extend the exclusive protection date for Togiak District past July 27. The board agreed to this and kept the area exclusive until August 5.

- The Togiak sockeye salmon total run was 3% below forecast at 573,000, the smallest since 2002 (Appendix A3).
- The only available Bristol Bay Area market for coho salmon produced the largest coho salmon harvest in Bristol Bay at 24,000 fish (Appendix A3).
- The king salmon harvest was 2,896 (61% below 20-year average). This is more than the previous 2 years and, considering reductions in the regular weekly schedule and the drift gillnet line implemented in 2013, might indicate a slightly stronger king salmon return to the Togiak River in 2015 (Appendix A3).

APPENDIX A

Appendix A1.–Total inshore run of salmon, in numbers of fish, Bristol Bay Area, 2013.

District	Sockeye	King	Chum	Pink	Coho	TOTAL
Naknek–Kvichak Catch	4,851,149	1,281	272,747	3	433	5,125,613
Kvichak Tower Escapement	2,088,576	NA	NA	NA	NA	2,088,576
Naknek Tower Escapement	938,160	NA	NA	NA	NA	938,160
NK Subtotal	7,877,885	1,281	272,747	3	433	8,152,349
Egegik Catch	4,774,295	119	36,761	0	812	4,811,987
Egegik Tower Escapement	1,113,630	NA	NA	NA	NA	1,113,630
Egegik Subtotal	5,887,925	119	36,761	0	812	5,925,617
Ugashik Catch	2,164,883	43	32,624	0	479	2,198,029
Ugashik Tower Escapement	898,110	NA	NA	NA	NA	898,110
Ugashik Subtotal	3,062,993	43	32,624	0	479	3,096,139
Nushagak Catch	3,162,555	9,918	585,940	203	124,162	3,882,778
Wood Tower Escapement	1,183,348	NA	NA	NA	NA	1,183,348
Igushik Escapement	387,036	NA	NA	NA	NA	387,036
Nushagak Escapement	894,172	113,709	628,133	NA	207,222	1,843,236
Nushagak Subtotal	5,627,111	123,627	1,214,073	203	331,384	7,296,398
Togiak Catch	467,326	2,642	209,946	183	11,420	691,517
Togiak Tower Escapement	128,118	NA	NA	NA	NA	128,118
Togiak R. & Trib. Escapement	NA	NA	NA	NA	NA	0
Kulukak Escapement	NA	NA	NA	NA	NA	0
Togiak Subtotal	595,444	2,642	209,946	183	11,420	819,635
Bristol Bay Catch	15,420,208	14,003	1,138,018	389	137,306	16,709,924
Bristol Bay Escapement ^a	7,631,150	113,709	628,133	NA	207,222	8,580,214
Bristol Bay Total Run	23,051,358	127,712	1,766,151	389	344,528	25,290,138

^a King is Nushagak only.

Appendix A2.–Total inshore run of salmon, in numbers of fish, Bristol Bay Area, 2014.

District	Sockeye	King	Chum	Pink	Coho	TOTAL
Naknek–Kvichak Catch	13,776,111	1,526	87,177	7,435	618	13,872,867
Kvichak Tower Escapement	4,458,540	NA	NA	NA	NA	4,458,540
Naknek Tower Escapement	1,474,428	NA	NA	NA	NA	1,474,428
NK Subtotal	19,709,079	1,526	87,177	7,435	618	19,805,835
Egegik Catch	6,925,328	318	33,157	4,835	11,437	6,975,075
Egegik Tower Escapement	1,382,466	NA	NA	NA	NA	1,382,466
Egegik Subtotal	8,307,794	318	33,157	4,835	11,437	8,357,541
Ugashik Catch	1,506,909	77	19,663	227	435	1,527,311
Ugashik Tower Escapement	640,158	NA	NA	NA	NA	640,158
Ugashik Subtotal	2,147,067	77	19,663	227	435	2,167,469
Nushagak Catch	6,445,967	11,448	242,211	1,166,993	242,391	8,109,010
Wood Tower Escapement	2,764,614	NA	NA	NA	NA	2,764,614
Igushik Escapement	340,590	NA	NA	NA	NA	340,590
Nushagak Escapement	618,493	70,482	525,797	2,281,831	478,198	3,974,801
Nushagak Subtotal	10,169,664	81,930	768,008	3,448,824	720,589	15,189,015
Togiak Catch	441,474	1,704	99,777	118,663	32,131	693,749
Togiak Tower Escapement	151,934	NA	NA	NA	NA	151,934
Togiak R. & Trib. Escapement	NA	NA	NA	NA	NA	0
Kulukak Escapement	NA	NA	NA	NA	NA	0
Togiak Subtotal	593,408	1,704	99,777	118,663	32,131	845,683
Bristol Bay Catch	29,095,789	15,073	481,985	1,298,153	287,012	31,178,012
Bristol Bay Escapement ^a	11,831,223	70,482	525,797	2,281,831	478,198	15,187,531
Bristol Bay Total Run	40,927,012	85,555	1,007,782	3,579,984	765,210	46,365,543

^a King is Nushagak only.

Appendix A3.—Total inshore run of salmon, in numbers of fish, Bristol Bay Area, 2015.

District	Sockeye	King	Chum	Pink	Coho	TOTAL
Naknek–Kvichak Catch	16,304,723	740	210,104	100	1,164	16,516,831
Kvichak Tower Escapement	7,341,612	NA	NA	NA	NA	7,341,612
Naknek Tower Escapement	1,920,954	NA	NA	NA	NA	1,920,954
Alagnak survey escapement	5,770,650	NA	NA	NA	NA	5,770,650
NK Subtotal	31,337,939	740	210,104	100	1,164	31,550,047
Egegik Catch	8,285,574	52	40,382	0	730	8,326,738
Egegik Tower Escapement	2,160,792	NA	NA	NA	NA	2,160,792
Egegik Subtotal	10,446,366	52	40,382	0	730	10,487,530
Ugashik Catch	5,311,518	93	36,185	2	1	5,347,799
Ugashik Tower Escapement	1,564,638	NA	NA	NA	NA	1,564,638
Ugashik Subtotal	6,876,156	93	36,185	2	1	6,912,437
Nushagak Catch	5,417,094	48,803	542,422	937	5,635	6,014,891
Wood Tower Escapement	1,941,474	NA	NA	NA	NA	1,941,474
Igushik Escapement	651,172	NA	NA	NA	NA	651,172
Nushagak Escapement	796,684	98,019	289,107	NA	NA	1,183,810
Nushagak Subtotal	8,806,424	146,822	831,529	937	5,635	9,791,347
Togiak Catch	353,063	2,890	100,193	1,129	24,312	481,587
Togiak Tower Escapement	218,700	NA	NA	NA	NA	218,700
Togiak R. & Trib. Escapement	NA	NA	NA	NA	NA	0
Kulukak Escapement	NA	NA	NA	NA	NA	0
Togiak Subtotal	571,763	2,890	100,193	1,129	24,312	700,287
Bristol Bay Catch	35,671,972	52,578	929,286	2,168	31,842	36,687,846
Bristol Bay Escapement ^a	22,366,676	98,019	289,107	NA	NA	22,753,802
Bristol Bay Total Run	58,038,648	150,597	1,218,393	2,168	31,842	59,441,648

^a King is Nushagak only.

Appendix A4.–Allocation of sockeye salmon by district and gear type 1998–2015.

Year	Percent Harvest by Gear Type ^a								
	Naknek–Kvichak		Egegik		Ugashik		Nushagak		
	Drift	Set	Drift	Set	Drift	Set	Drift	Set	
1998	^a	85	15	86	14	85	15	72	28
1999	^a	85	15	85	15	89	11	73	27
2000	^a	82	18	84	16	87	13	78	22
2001	^a	77	23	85	15	80	20	79	21
2002	^a	65	35	85	15	88	12	75	25
2003	^a	66	34	80	20	88	12	84	16
2004	^{a,b}	80	20	85	15	91	9	84	16
2005	^a	78	22	82	18	87	13	85	15
2006	^a	83	17	84	16	88	12	88	12
2007	^a	81	19	84	16	92	8	80	20
2008	^a	81	19	85	15	92	8	79	21
2009	^a	80	20	85	15	87	13	77	23
2010	^a	80	20	84	16	90	10	77	23
2011	^a	83	17	84	16	88	12	77	23
2012	^a	85	15	83	17	89	11	63	37
2013	^a	84	16	85	15	90	10	78	22
2014	^a	83	17	89	11	83	17	74	26
2015	^{a,c}	84	16	81	19	91	9	69	31
1998-2015 Avg.		80	20	84	16	88	12	77	23
2013-2015 Avg.		84	16	85	15	88	12	74	26
Allocation		84	16	86	14	90	10	74	26

^a Data from 1998 to 2015 for Naknek–Kvichak, Egegik, Ugashik, and Nushagak Districts are for the allocation periods only.

^b Excludes 1,656,924 fish harvested in the General District.

^c Preliminary data.

Appendix A5.–Naknek–Kvichak District sockeye salmon allocation by gear type and percent of catch through the allocation period 1998–2015.

Year		Drift	Set Net			Naknek River Special Harvest	
		Naknek–Kvichak	Naknek Section	Kvichak Section	Combined Section ^b	Drift Net	Set Net
1998	^c	85%	7%	8%	15%	0%	0%
1999	^c	83%	9%	7%	16%	2%	0%
2000	^c	65%	10%	4%	14%	17%	4%
2001	^c	36%	7%	1%	8%	41%	15%
2002	^{c,d}	0%	0%	0%	0%	64%	36%
2003	^c	6%	1%	0%	1%	60%	33%
2004	^c	60%	9%	8%	17%	20%	3%
2005	^c	25%	3%	5%	8%	52%	14%
2006	^c	52%	5%	4%	9%	31%	8%
2007	^c	44%	6%	3%	10%	37%	10%
2008	^c	81%	12%	7%	19%	0%	0%
2009	^c	80%	11%	9%	20%	0%	0%
2010	^c	80%	10%	10%	20%	0%	0%
2011	^c	83%	10%	7%	17%	0%	0%
2012	^c	85%	7%	8%	15%	0%	0%
2013	^c	84%	8%	8%	16%	0%	0%
2014	^c	83%	9%	8%	17%	0%	0%
2015	^{c,e}	84%	8%	8%	16%	0%	0%
1998-2015 Avg.		62%	7%	6%	13%	18%	7%
2012-2015 Avg.		84%	8%	8%	16%	NA	NA
Allocation		84%	8%	8%	16%		

^a Includes all drift catches, district and inriver.

^b Includes all set net catches, district and inriver.

^c Allocation period June 1 to July 17.

^d Entire season was fished in the NRSHA.

^e Data are preliminary.

Appendix A6.—Nushagak District sockeye salmon allocation by gear type and percentage of catch, through the allocation period 1998–2015.

Year	Nushagak Drift			Set Net		Wood River Special Harvest	
	District	Nushagak Section	Igushik Section	Combined Section	Drift Net	Set Net	
1998 ^a	72%	24%	4%	28%	79%	21%	
1999 ^a	69%	25%	6%	31%	79%	21%	
2000 ^b	80%	15%	5%	20%	70%	30%	
2001 ^b	79%	17%	4%	21%			
2002 ^b	78%	21%	1%	22%	66%	34%	
2003 ^b	84%	14%	2%	16%			
2004 ^b	84%	15%	1%	16%			
2005 ^b	85%	13%	2%	15%			
2006 ^b	88%	11%	2%	12%			
2007 ^b	80%	17%	3%	20%			
2008 ^b	79%	16%	5%	21%			
2009 ^b	77%	19%	4%	23%			
2010 ^b	77%	17%	5%	23%	70%	30%	
2011 ^b	77%	16%	7%	23%			
2012 ^b	65%	28%	7%	35%	51%	49%	
2013 ^b	78%	17%	5%	22%			
2014 ^b	77%	16%	7%	23%	16%	84%	
2015 ^{b,c}	69%	22%	9%	31%			
1998-2015 Avg.	78%	18%	4%	22%	62%	38%	
2013-2015 Avg.	78%	18%	4%	22%	16%	84%	
Allocation	74%	20%	6%	26%	NA	NA	

^a Allocation period June 1 to September 30.

^b Allocation period June 1 to July 17.

^c Data are preliminary.

Appendix A7.–Sockeye salmon harvest by district, in numbers of fish, Bristol Bay Area 1995–2015.

Year	Naknek–Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1995	20,279,581	14,426,007	4,509,418	4,445,900	605,328	44,266,234
1996	8,215,028	10,809,115	4,411,055	5,693,563	462,897	29,591,658
1997	589,311	7,517,389	1,402,690	2,506,818	142,569	12,158,777
1998	2,595,439	3,528,845	730,274	2,990,597	190,427	10,035,582
1999	9,452,972	7,388,080	2,256,007	6,175,419	385,411	25,657,889
2000	4,727,061	7,029,397	1,538,790	6,367,208	794,996	20,457,452
2001	5,280,538	2,872,662	480,509	4,734,800	810,096	14,178,605
2002	1,418,938	4,610,374	1,573,234	2,839,424	233,743	10,675,713
2003	3,348,504	2,291,502	1,748,934	6,665,965	706,008	14,760,913
2004	4,715,070	10,209,227	3,139,229	6,104,048	437,234	26,261,802 ^a
2005	6,728,469	8,015,950	2,216,635	7,096,031	465,094	24,522,179
2006	7,151,741	7,408,983	2,429,637	10,876,552	626,442	28,493,355
2007	9,022,511	6,495,908	5,026,615	8,404,111	816,581	29,765,726
2008	10,381,844	7,403,885	2,334,022	6,903,157	651,315	27,674,223
2009	8,514,944	11,527,462	2,555,263	7,730,168	559,442	30,887,279
2010	10,858,209	5,070,816	4,031,832	8,424,030	667,850	29,052,737
2011	9,016,321	4,810,362	2,643,495	4,886,552	744,626	22,101,356
2012	10,152,917	5,062,390	2,418,653	2,663,014	622,909	20,919,883
2013	4,851,149	4,774,295	2,164,883	3,162,555	467,326	15,420,208
2014 ^a	13,776,111	6,925,328	1,506,909	6,445,967	441,474	29,095,789
20-Year Avg.	7,553,833	6,908,899	2,455,904	5,755,794	541,588	23,142,924
1995-04 Avg.	6,062,244	7,068,260	2,179,014	4,852,374	476,871	20,198,091
2005-14 Avg.	9,045,422	6,749,538	2,732,794	6,659,214	606,306	25,793,274
2015 ^b	16,304,723	8,285,574	5,311,518	5,417,094	353,063	35,671,972

^a Includes 3,995 fish not assigned to a district.

^b Preliminary.

Appendix A8.–Sockeye salmon escapement by district, in numbers of fish, Bristol Bay Area 1995-2015.

Year	Naknek– Kvichak ^a	Egegik ^b	Ugashik ^c	Nushagak ^d	Togiak ^e	Total
1995	11,365,573	1,282,508	1,321,108	2,284,060	240,266	16,493,515
1996	2,835,426	1,075,596	692,167	2,607,401 ^f	212,524	7,423,114
1997	2,747,511	1,104,004	656,641	2,061,085	171,373	6,740,614
1998	3,750,246	1,110,932	924,853	2,490,324	214,626	8,490,981
1999	8,303,878	1,727,772	1,662,042	2,302,934 ^f	231,196	14,227,822
2000	3,654,568	1,032,138	638,420	2,159,628 ^f	390,080	7,874,834
2001	3,194,708	968,872	866,368	2,765,440 ^f	338,616 ^g	9,102,876
2002	2,303,463	1,036,092	905,584	1,755,993 ^f	199,507	6,200,639
2003	5,627,974 ^h	1,152,120	790,202	2,295,963 ^f	261,851 ^g	10,128,110
2004	12,836,100 ^h	1,290,144	815,104	2,196,864 ^f	154,681 ^g	17,292,893
2005	9,283,980 ^h	1,621,734	799,612	2,968,962 ^f	155,778 ^g	14,830,066
2006	6,795,420 ^h	1,465,158	1,003,158	4,861,780 ^f	312,126 ⁱ	14,437,642
2007	8,221,926 ^h	1,432,500	2,599,186	2,461,579 ^f	269,646 ⁱ	14,984,837
2008	7,411,104 ^h	1,259,568	596,332	3,271,926 ^f	205,680 ⁱ	12,744,610
2009	4,406,424 ^h	1,146,276	1,364,338	2,317,569 ^f	313,946 ⁱ	9,548,553
2010	6,859,068 ^h	927,054	830,886	2,791,080 ^f	188,298 ⁱ	11,596,386
2011	4,325,220 ^h	961,200	1,029,853	1,947,577	190,970 ⁱ	8,454,820
2012	5,926,503	1,233,900	695,018	1,389,975	203,148 ⁱ	9,448,544
2013	4,122,686	1,113,630	898,110	2,465,791	128,118 ⁱ	8,728,335
2014	6,133,492	1,382,466	640,158	3,723,697	151,934 ⁱ	12,031,747
20-Year Avg.	6,005,264	1,216,183	986,457	2,555,981	226,718	11,039,047
1995-04 Avg.	5,661,945	1,178,018	927,249	2,291,969	241,472	10,397,540
2005-14 Avg.	6,348,582	1,254,349	1,045,665	2,819,994	211,964	11,680,554
2015	15,033,216	2,160,792	1,564,638	3,389,330	218,700 ⁱ	22,366,676

^a Includes counts from Kvichak Tower, Alagnak aerial survey, and Naknek Tower.

^b Includes Egegik River. May include King Salmon River and Shoskey Creek.

^c Includes Ugashik River. Also includes Mother Goose River, Dog Salmon River system 1991–2004.

^d Includes Igushik, Nushagak-Mulchatna, Nuyakuk, Snake, and Wood rivers and Nushagak River sonar.

^e Includes Togiak River/Lake and tributaries, Kulukak system, and other miscellaneous river systems.

^f Snake River not surveyed.

^g Only partial and/or late surveys of Togiak streams.

^h Alanak tower count only.

ⁱ Togiak River Tower count.

Appendix A9.—Average exvessel price per pound paid for salmon, by species, Bristol Bay Area 1995-2015.

Year	Sockeye	King	Chum	Pink	Coho
1995	0.77	0.66	0.20	0.14	0.43
1996	0.81	0.51	0.11	0.05	0.31
1997	0.90	0.52	0.10	0.07	0.50
1998	1.22	0.62	0.10	0.08	0.48
1999	0.84	0.53	0.10	0.09	0.72
2000	0.67	0.46	0.09	0.08	0.41
2001	0.42	0.31	0.11	0.09	0.33
2002	0.49	0.33	0.09	0.06	0.32
2003	0.51	0.32	0.08	0.07	0.27
2004	0.51	0.37	0.09	0.09	0.31
2005	0.62	0.58	0.11	0.02	0.29
2006	0.66	0.71	0.12	0.03	0.38
2007	0.67	0.64	0.13	0.03	0.41
2008	0.75	0.83	0.17	0.17	0.55
2009	0.80	0.89	0.17	0.07	0.56
2010	1.07	1.18	0.28	0.36	0.66
2011	1.17	1.04	0.37	0.29	0.74
2012	0.97	1.31	0.34	0.39	0.55
2013	1.50	1.48	0.30	0.14	0.79
2014 ^a	1.20	0.80	0.30	0.28	0.90
20-Year Avg.	0.83	0.70	0.17	0.13	0.50
1995-04 Avg.	0.72	0.46	0.11	0.08	0.41
2005-14 Avg.	0.94	0.95	0.23	0.18	0.58
2015 ^a	0.50	0.50	0.30	0.20	0.25

Source: OCEANAK Alaska Department of Fish and Game Commercial Operators Annual Report (COAR) Buying Subject Area. The department is not responsible for errors or deficiencies in reproduction, subsequent analysis, or interpretation.

Note: The exvessel price includes any reported postseason adjustments or bonuses paid after the fish was purchased. Prices represent a weighted average price per pound by species and area. Prices may reflect a mixture of gear types and delivery conditions.

^a Does not include postseason adjustments.

Appendix A10.—Estimated exvessel value of the commercial salmon catch by species, in thousands of dollars, Bristol Bay Area, 1995–2015.

Year	Sockeye	King	Chum	Pink ^a	Coho	Total ^b
1995	187,863	1,295	1,262		142	190,562
1996	150,968	754	606	7	336	152,671
1997	65,743	652	198		183	66,777
1998	70,529	1,414	234	7	503	72,688
1999	114,504	207	407		97	115,215
2000	83,940	165	232	16	403	84,756
2001	40,395	132	679		40	41,246
2002	31,899	272	290	0	19	32,479
2003	47,993	249	482		77	48,801
2004	77,897	647	398	19	158	79,119
2005	96,650	738	962		154	98,503
2006	90,233	1,330	1,350	19	178	93,110
2007	119,196	542	1,583		120	121,441
2008	109,904	298	1,271	158	288	111,919
2009	127,615	400	1,291		162	129,468
2010	180,818	464	1,711	1,565	469	185,027
2011	135,655	430	1,604		37	137,726
2012	113,777	254	831	339	155	115,356
2013	138,782	327	2,185		653	141,947
2014	195,700	186	880	1,334	1,463	199,563
20-year Avg.	111,323	538	923	346	282	113,412
1995-04 Avg.	87,173	579	479	10	196	88,437
2005-14 Avg.	140,625	497	1,367	683	368	143,540
2015	92,396	396	1,995		513	95,300

Note: Value paid to fishermen. Derived from exvessel price per pound multiplied by weight of commercial catch. Blank cells represent no data.

^a Includes even years only.

^b Total may vary from actual sum due to rounding.

Appendix A11.–Bristol Bay Area permits and permits fished, by gear group, 1995–2015.

Year	Drift Total	Permits Fished	Dual	% Fished	Set Total	Permits Fished	% Fished	Drift and Set Total
1995	1,888	1,882		100%	1,019	967	95%	2,855
1996	1,891	1,884		100%	1,017	941	93%	2,832
1997	1,899	1,875		99%	1,019	921	90%	2,820
1998	1,899	1,858		98%	1,015	901	89%	2,800
1999	1,898	1,847		97%	1,014	925	91%	2,823
2000	1,890	1,823		96%	1,012	921	91%	2,811
2001	1,883	1,566		83%	1,010	834	83%	2,717
2002	1,878	1,183		63%	1,006	680	68%	2,558
2003	1,867	1,389		74%	1,001	714	71%	2,581
2004	1,860	1,426		77%	989	797	81%	2,849
2005	1,862	1,526		82%	988	829	84%	2,850
2006	1,859	1,567		84%	985	844	86%	2,844
2007	1,862	1,621		87%	983	836	85%	2,845
2008	1,863	1,636		88%	980	850	87%	2,843
2009	1,863	1,642		88%	981	855	87%	2,844
2010	1,863	1,731	360	93%	983	861	88%	2,846
2011	1,862	1,747	224	94%	981	878	90%	2,846
2012	1,862	1,740	326	93%	979	883	90%	2,841
2013	1,862	1,709	313	92%	978	854	87%	2,840
2014	1,863	1,751	312	93%	977	883	90%	2,840
2015	1,863	1,744	309	94%	a	a	a	a

^a Data unavailable.